

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent No.: US 7,332,951 B2 Issue Date : Feb. 19, 2008
Serial No.: 10/710,472 Filing Date : Jul. 14, 2004
Inventor : En-Hsiang Yeh
Docket No.: MTKP0157USA4

Title: SWITCHED CAPACITOR CIRCUIT CAPABLE OF MINIMIZING
 CLOCK FEEDTHROUGH EFFECT AND HAVING LOW PHASE NOISE
 AND METHOD THEREOF

To: Commissioner for Patents
 P.O. BOX 1450
 Alexandria, VA 22313-1450

Subject: Request for Certificate of Correction of Office
 Mistake

Dear Sir:

The residence of the Assignee listed on the front page of the Patent is incorrect (Attachment 1). Documents on record indicate this as an Office mistake of consequence.

The applicant hereby requests that a Certificate of Correction be issued under 37 CFR 1.322 to correct the residence of the Assignee from "Hsin-Chu, Hsein" to "Hsin-Chu Hsien" which was correctly listed on the Fee Transmittal submitted on 11/07/2007 (Attachment 2) and the Notice of Recordation dated 07/14/2004 (Attachment 3). Your quick response will be greatly appreciated.

Sincerely yours,

Winston Hsu

Date: MAR 13 2008

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

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Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

Page 1 of 1

PATENT NO. : 7,332,951 B2

APPLICATION NO.: 10/710,472

ISSUE DATE : Feb. 19, 2008

INVENTOR(S) : En-Hsiang Yeh

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the title page, item(73), correct the residence of the assignee from "Hsin-Chu, Hsein" to "Hsin-Chu Hsien".

MAILING ADDRESS OF SENDER (Please do not use customer number below):

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Please correct the residence of the assignee from "Hsin-Chu, Hsein" to "Hsin-Chu Hsien"

Attachment 1



US007332951B2

(12) **United States Patent**
Yeh

(10) **Patent No.:** **US 7,332,951 B2**
(45) **Date of Patent:** **Feb. 19, 2008**

(54) **SWITCHED CAPACITOR CIRCUIT CAPABLE OF MINIMIZING CLOCK FEEDTHROUGH EFFECT AND HAVING LOW PHASE NOISE AND METHOD THEREOF**

(75) **Inventor:** **En-Hsiang Yeh, Hsin-Chu (TW)**

(73) **Assignee:** **Mediatek Incorporation, Science-Based Industrial Park, Hsin-Chu, Hsein (TW)**

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 58 days.

(21) **Appl. No.:** **10/710,472**

(22) **Filed:** **Jul. 14, 2004**

(65) **Prior Publication Data**
US 2005/0068086 A1 Mar. 31, 2005

Related U.S. Application Data

(63) Continuation-in-part of application No. 10/605,428, filed on Sep. 30, 2003, now Pat. No. 6,975,156.

(51) **Int. Cl.**
G06F 7/64 (2006.01)

(52) **U.S. Cl.** **327/337; 331/36 C**

(58) **Field of Classification Search** **257/335, 257/347, 401, 337, 348, 345, 346, 300, 389; 325/340, 316, 350; 455/260; 327/332, 117, 327/179, 337; 331/36 C**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,977,840 A * 11/1999 Connell et al. 331/158
6,181,215 B1 1/2001 Kuttner
6,226,506 B1 5/2001 Welland et al.
6,393,070 B1 * 5/2002 Reber 375/340
6,975,156 B2 * 12/2005 Yeh 327/337

FOREIGN PATENT DOCUMENTS

CN 1269920 A 10/2000

* cited by examiner

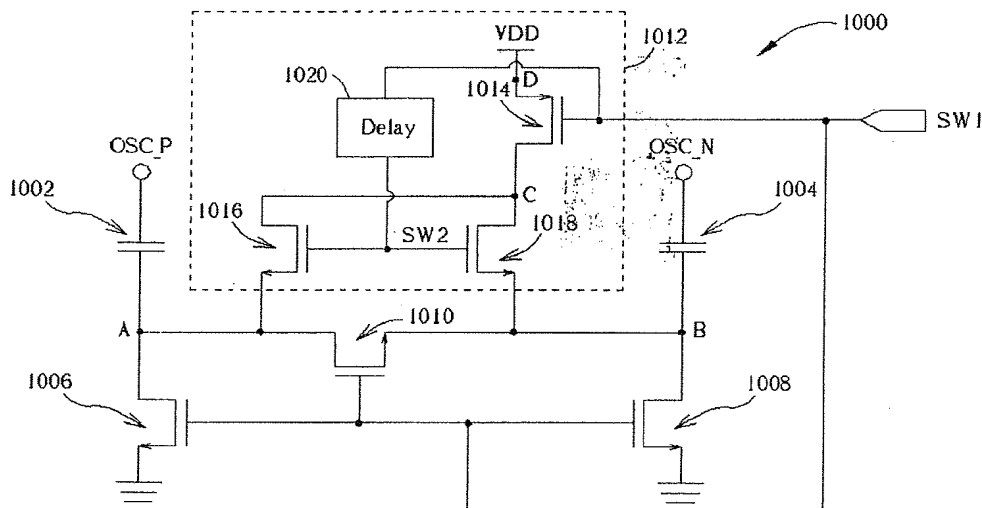
Primary Examiner—Evan Pert

(74) *Attorney, Agent, or Firm*—Winston Hsu

(57) **ABSTRACT**

A switched capacitor circuit includes a positive side capacitor coupled to a first positive side node; a first positive side switch element for selectively coupling the first positive side node to a second node according to a first control signal; and precharge circuit coupled to the first positive side node for precharging the first positive side node to a precharge voltage for a predetermined time when the first positive side switch element is switched off according to the first control signal, and then for charging the first positive side node to a charge voltage until the first positive side switch element is switched on according to the first control signal. By rapidly precharging the first positive side node, the clock feedthrough effect is eliminated and the locking period of the VCO is shortened. Afterwards by charging the first positive side node, the phase noise of the VCO is minimized.

17 Claims, 14 Drawing Sheets



Attachment 2

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Stephanie Lai	(Depositor's name)
<i>Stephanie Lai</i>	(Signature)
11/07/2007	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/710,472	07/14/2004	En-Hsiang Yeh	MTK0157USA4	4471
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TITLE OF INVENTION: SWITCHED CAPACITOR CIRCUIT CAPABLE OF MINIMIZING CLOCK FEEDTHROUGH EFFECT AND HAVING LOW PHASE NOISE AND METHOD THEREOF

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional	NO	\$1440	\$300	\$1740	12/13/2007
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EXAMINER	ART UNIT	CLASS-SUBCLASS
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PERT, EVAN T	2826	327-337000
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1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

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- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
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1 Winston Hsu

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

MEDIATEK INCORPORATION

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

5F, No. 1-2, Innovation Road 1, Science-Based Industrial Park, Hsin-Chu
Hsien, Taiwan, R.O.C.

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☒ Issue Fee
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5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above. NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Winston Hsu

Date

11/07/2007

Typed or printed name

Winston Hsu

Registration No.

41,526

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Joe

JUL 26 2004

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RECORDATION DATE: 07/14/2004

REEL/FRAME: 014844/0171

NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).
DOCKET NUMBER: MTKP0157USA4

ASSIGNOR:

YEH, EN-HSIANG

DOC DATE: 07/07/2004

ASSIGNEE:

MEDIATEK INCORPORATION
5F, NO. 1-2, INNOVATION ROAD 1,
SCIENCE-BASED
INDUSTRIAL PARK
HSIN-CHU HSIEN, TAIWAN

SERIAL NUMBER: 10710472

FILING DATE:

PATENT NUMBER:

ISSUE DATE:

TITLE:

014844/0171 PAGE 2

MARY BENTON, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

PATENT ASSIGNMENT

Electronic Version v07
Stylesheet Version v02

07/14/2004
800012779

SUBMISSION TYPE:	NEW ASSIGNMENT	APPLICATION NUMBER 10/710472			
NATURE OF CONVEYANCE:	ASSIGNMENT OF ASSIGNOR'S INTEREST				
CONVEYING PARTY DATA					
Name		Execution Date			
En-Hsiang Yeh		2004-07-07			
RECEIVING PARTY DATA					
Name	Street Address	Internal Address	City	State/Country	Postal Code
MEDIATEK INCORPORATION	5F, No. 1-2, Innovation Road 1, Science- Based	Industrial Park	Hsin-Chu Hsien	TAIWAN	
CORRESPONDENCE DATA					
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NAME OF PERSON SIGNING:		WINSTON HSU			
DATE SIGNED:		2004-07-12			
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